PROPERTY-SPECIFIC SAMPLING AND ANALYSIS PLAN

USEPA BROWNFIELDS HAZARDOUS SUBSTANCES ASSESSMENT
USEPA COOPERATIVE AGREEMENT NO.: BF-00E683-01

CITY OF CHICAGO DEPARTMENT OF ENVIRONMENT
BROWNFIELDS ASSESSMENT PROJECT

Proposed Kimball Park
1809 North Kimball Avenue
Chicago, Cook County, Illinois

August 13, 2012
Terracon Project No.: A2107017 Task 7A

Prepared for:
City of Chicago, Illinois

Prepared by:
Terracon Consultants, Inc.
Chicago, Illinois

August 10, 2012

Mr. Dave Graham
City of Chicago
Department of Fleet and Facility Management (2FM)
Bureau of Environmental Health & Safety Management (EHS)
Urban Management and Brownfields Redevelopment Division
30 North LaSalle Street, Suite 200
Chicago, Illinois 60602

Re: Property-Specific Sampling and Analysis Plan
Proposed Kimball Park (Parcels 13-35-409-037; -039; and, -042)
Chicago, Cook County, Illinois
City of Chicago Department of Environment Brownfield Assessments Project
Hazardous Substances Assessments
USEPA Cooperative Agreement No.: BF-00E683-01
Terracon Project No.: A2107017 Task 7A

Dear Mr. Graham:

Terracon Consultants, Inc. (Terracon) is pleased to provide this Property-Specific Sampling and Analysis Plan (SAP) to you under the Professional Services Agreement between the City of Chicago and Terracon dated September 7, 2006. This plan has been developed in response to, and in accordance with, specific quality assurance (QA) and quality control (QC) requirements prescribed by United States Environmental Protection Agency (USEPA) Cooperative Agreement No.: BF-00E683-01.

This SAP will serve to describe guide Phase II sampling activities for the Proposed Kimball Park (Parcels 13-35-409-037; -039; and, -042) site located at 1809 North Kimball Avenue, Chicago, Cook County, Illinois. This SAP was developed consistent with the Quality Assurance Project Plan, Revision 1 (QAPP), dated September 16, 2011. The QAPP was approved by the USEPA in mid-December 2011. The proposed work presented herein will be completed following USEPA Region 5 approval of the SAP.

This document is prepared for the exclusive use of our client for the specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices. No warranties, express or implied, are intended or made. In the event any changes in conditions as outlined in this plan are observed, the conclusions contained in this document cannot be considered valid unless the changes are reviewed and the conclusions of this plan are modified or verified in writing by the environmental professional and approved by USEPA.

If you have any questions or comments, please do not hesitate to contact us at [312] 575 0014.

Sincerely,
Terracon Consultants, Inc.

Matthew K. Otto, CHMM
Manager, Chicago Operations

Matt A. Catlin, PE
Senior Technical Support

Brian Porter, PE
Senior Technical Support

MKO1/MAC2/ BRP3
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PROPERTY-SPECIFIC SAMPLING AND ANALYSIS PLAN
PROPOSED KIMBALL PARK (PINs 13-35-409-037; -039; and, -042)
1809 NORTH KIMBALL AVENUE
CHICAGO, COOK COUNTY, ILLINOIS
USEPA BROWNFIELDS HAZARDOUS SUBSTANCES ASSESSMENT GRANT

USEPA Cooperative Agreement No.: BF-00E683-01
Terracon Project No.: A2107017 Task 7A
August 13, 2012

For use only with the approved Multi-Site Quality Assurance Project Plan (QAPP) – Revision 1
Dated September 16, 2011

1.0 INTRODUCTION

The site is located at 1809 North Kimball Avenue in Chicago, Cook County, Illinois and is associated with Property Identification Numbers (PINs) 13-35-409-037; -039; and, -042. The site was approved for Brownfields funding by EPA on February 25, 2011.

2.0 ATTACHMENTS

- ☒ Topographic Vicinity Diagram
- ☒ Site Location Diagram
- ☒ Point Source Sampling Map
- ☐ Non-Point Source Sampling Map(s)
- ☐ SDP[1] Diagram(s)
- ☐ Optimized Sampling Map
- ☐ Groundwater Sampling Map(s)
- ☒ Sample Coordinates Map
- ☐ Access Agreement
- ☒ Site Safety and Health Plan
- ☐ Changed Conditions

3.0 PROPERTY IDENTIFICATION

Address:	1809 North Kimball Avenue, Chicago, Illinois 60612
Site Name:	Proposed Kimball Park (PINs 13-35-409-037; -039; and, -042)
Hazardous Substance or Petroleum Site:	Hazardous Substances
Signed Access Agreement Attached?	☐ Yes ☒ No – City of Chicago is current property owner.

[1] *Statistical Decision Performance Diagram*

Changed conditions since Phase I ESA[2]? ☒ No ☐ Yes - Describe:

4.0 BACKGROUND

The site is located at 1809 North Kimball Avenue in Chicago, Cook County, Illinois and is associated with Property Identification Numbers (PINs) 13-35-409-037; -039; and, -042. The site is trapezoidal shaped and consists of approximately 0.41 acres. The site is currently vacant with remnant concrete surface cover with some areas containing grass/bare soil. An earthen ramp with concrete retaining wall is located in the southwestern quadrant of the site. The ramp leads to the elevated rail line (approximately 15-20 feet above the site grade) which borders the site to the south. The site location is depicted on Figure 1 of Appendix A.

4.1 Site Area Description

The site is located in a mixed residential/commercial/industrial area of Chicago. The site is bordered on the north by a single-family residential home; on the south by a tract of land owned by Soo Line (railroad); on the east by a condominium complex (G&A Residences); and, on the west by North Kimball Avenue followed by a multi-family residential development (Humboldt Ridge). These surrounding land uses are shown on Figure 2 – Site Diagram of Appendix A.

With respect to site history, Terracon reviewed a Comprehensive Site Investigation Report (CSIR) prepared for the site by Weston Solutions, Inc. (Weston) dated July 2012. The Weston report noted the following:

- *1896:* Site occupied by a single-family dwelling on northern portion of property and used for lumber storage for Elsmere Lumber Company (ELC; south adjoining property) on eastern and southern portion of property
- *1921:* Site appears vacant with no structures;
- *1950:* Site occupied by a warehouse believed to be an extension of the American Laundry Machinery Company (ALMC; east adjoining property). The warehouse included a structure for painting operations and/or paint storage;
- *1975, 1988, 1991, and 1994:* Site occupied by a warehouse believed to be an extension of the former ALMC, the Compco Corporation (Compco), a fluorescent light bulb and fixture manufacturer; and,
- *2002 and 2004:* Site appears vacant with no structures.

Terracon is in the process of completing a Phase I ESA on the site. The findings listed above are consistent with our findings to date. It appears the site was formerly a part of industrial/manufacturing operations that occurred on the adjoining east and south properties.

[2] *Environmental Site Assessment*

The property to the west (across North Kimball Avenue) was historically industrial until recent redevelopment as a multi-family apartment complex. Properties to the north have historically been single-family residential.

4.2 Previous Investigations

Terracon reviewed a CSIR prepared for the site by Weston for EPA dated July 2012. The Weston report noted the following:

> "A Phase II ESA was conducted by Brecheisen Engineering, Inc. (BEI)[3] in August 2010 with findings presented in a Final Phase II ESA Report dated September 24, 2010. The Weston Solutions, Inc. (WESTON®) 2012 Site investigation activities were conducted between May 29 through 31, 2012. The 2012 sample design was developed to address data gaps from the 2010 Phase II ESA and to delineate known contamination at the Site. BEI collected a total of 26 soil samples from 8 soil boring locations in August 2010 and WESTON collected a total of 19 investigative soil samples from 10 soil borings location in May 2012. BEI completed three soil borings as 1-inch diameter polyvinyl chloride temporary monitoring wells and collected one round of groundwater samples in August 2010. WESTON completed three soil borings as 2-inch diameter polyvinyl chloride monitoring wells, collocated with the BEI wells, and collected one round of groundwater samples in June 2012.
>
> Soil sampling analytical results indicated the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and metals at concentrations above the analytical laboratory method detection limits. Cyanide, polychlorinated biphenyls (PCBs), and herbicides were not detected above the analytical laboratory method detection limits. Constituents present in the soil samples at concentrations above at Tier 1[4] soil remediation objectives (SROs) include the following:
>
> - VOCs – 1,1,2-trichloroethane, 1,1-dichloroethene, benzene, chloroform, cis-1,2-dichloroethene, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride;
> - SVOCs – benzo(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene; and,
> - Metals – total antimony, total arsenic, total and toxicity characteristic leaching procedure (TCLP) lead, total mercury, and total selenium.
>
> VOC concentrations exceeded Tier 1 SROs for the soil component of the groundwater migration exposure pathway for Class II groundwater at the deepest sampling interval at

[3] *The BEI report was not provided to Terracon for review.*
[4] *Illinois Environmental Protection Agency (IEPA) Tiered Approach to Corrective Action Objectives (TACO) Tier 1 Remediation Objectives (ROs).*

locations B-3/KPSB09 (6 to 9 ft below ground surface [bgs]), B-4 (9 to 12 ft bgs), and KP-SB08 (15 to 17 ft bgs) located along the northern boundary of the Site. VOC concentrations exceeded Tier 1 SROs for the residential ingestion and inhalation pathways and soil component of the groundwater migration exposure pathway for Class II groundwater at the deepest sampling interval at locations B-2/KP-SB01 (18 to 20 ft bgs), B-5/KP-SB02 (18 to 20 ft bgs), KP-SB04 (14 to 16 ft bgs), KPSB05 (14 to 16 ft bgs), KP-SB06 (14 to 16 ft bgs). Metal concentrations exceeding Tier I SROs were limited to the uppermost 6 ft of the Site. The highest concentrations of antimony, arsenic, lead, mercury, and selenium were identified from the 3 to 6 foot depth interval along the eastern Site boundary (B-4, B-5 and B-6). It should also be noted several of the compounds also meet individual criteria for hazardous waste.

The horizontal extent of constituents of concern (COCs) at concentrations exceeding the SROs has been established by the property boundaries in all directions. The vertical extent of contamination is not defined at the following sampling locations for the listed COCs:

- B-2/KP-SB01 – trichloroethene at 18 to 20 ft bgs;
- B-3/KP-SB09 – trichloroethene at 6 to 9 ft bgs;
- B-4 – cis-1,2-dichloroethene and vinyl chloride at 9 to 12 ft bgs;
- B-5/KP-SB02 – cis-1,2-dichloroethene, trichloroethene, and vinyl chloride at 18 to 20 ft bgs;
- B-8/KP-SB10 – benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene at 12 to 14 ft bgs;
- KP-SB04 – trichloroethene and vinyl chloride at 14 to 16 ft bgs;
- KP-SB05 – trichloroethene and vinyl chloride at 14 to 16 ft bgs;
- KP-SB06 – cis-1,2-Dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride at 14 to 16 ft bgs; and,
- KP-SB08 – cis-1,2-dichloroethene and vinyl chloride at 15 to 17 ft bgs.

Analytical results from groundwater samples indicated the presence of chloroform, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride, and iron at concentrations exceeding the Tier 1 Class II groundwater remediation objectives[5] for the groundwater component of the groundwater ingestion route. The extent of the groundwater plume has not been defined.

Based on observations during the field activities and evaluation of the analytical results, sources of chemical contamination at the Site may be attributed to: 1) former industrial use of the eastern adjacent property for manufacturing purposes as ELC, ALMC, and Compco; 2) long-term historical Site uses that included painting, automobile warehousing, lumber storage and warehousing, and storage operations; 3) potential unregistered USTs on-site

[5] *Weston conducted in-situ hydraulic conductivity testing that confirmed the site's Class II designation.*

or adjacent to the Site; and 4) the presence of undocumented urban fill brought onto the Site.

Based on the findings of this investigation, WESTON recommends:

- Address potential vapor migration to nearby residential properties;
- Define the vertical extent of soil contamination;
- Define the vertical and horizontal extent of the groundwater plume;
- Evaluate remedial technologies;
- Develop Remediation Objectives Report; and,
- Develop Remedial Action Plan."

A current Phase I ESA is being completed by Terracon for the City of Chicago using Brownfields grant funding (Terracon Project No.: A2107017 Task 7). Terracon's ESA identified the potential presence of urban fill material as well as documented soil/groundwater contamination with VOCs/SVOCs/Metals as recognized environmental conditions (RECs) for the site. Terracon notes the aforementioned RECs are site-wide and not limited to a specific area of the site.

4.3 Geological Information

According to the Weston report, the subsurface stratigraphy was generally a silty sand fill layer to a maximum depth of 3 ft bgs. This fill layer was primarily composed of fine to medium sand with silt and some small gravel and is nearly uniform across the site. Immediately underlying this fill layer is medium plasticity clay glacial till. Discontinuous seams of sand, silt, and gravel (ranging from 1 ft to 3 ft in thickness) were noted throughout the clay glacial till unit.

Urban fill in the City of Chicago often exhibits elevated concentrations of SVOCs and metals.

4.4 Environmental and/or Human Impact

As documented in the Weston report, the site is impacted with VOCs, SVOCs, and Metals at concentrations exceeding the IEPA Tier 1 SROs. Considering the proposed future use of the site as a park connecting the community to the adjacent south elevated railroad embankment, which will be converted by Chicago Park District into the Bloomingdale Trail, an elevated linear park, the potential for impact to human health is elevated for the ingestion pathway. Based on the existing data, further evaluation is required to determine the potential for indoor air vapor exposure based IEPA's proposed standards.

Given the identified RECs and proposed use of the site, it is anticipated that the site will be enrolled into the IEPA Site Remediation Program (SRP) to obtain a comprehensive No Further Remediation (NFR) letter. The site's enrollment may be performed in conjunction with parcels to the south and southeast of the site. Joint enrollment in the SRP is contingent on the City of Chicago's acquisition of the south and southeast parcels.

5.0 SAMPLING STRATEGY

The following sampling strategy is designed to complete site characterization using existing data, and fulfill the requirements of the IEPA SRP for a Comprehensive Site Investigation pursuant to Title 35 Illinois Administrative Code (35 IAC) Sections 740.420(a) and (b). As previously mentioned, the site's enrollment may be performed in conjunction with parcels to the south and southeast of the site.[6] The City of Chicago will determine the appropriateness of entering the site into the SRP given the site conditions following the results proposed.

A total of five direct-push soil borings (to be denoted as TB-1 through TB-5) will be advanced at the site in the vicinity of the soil borings that exhibited elevated VOC concentrations in an attempt to vertically delineate the extent of the soil impacts. Proposed boring locations are depicted on the attached Figures 2 and 3. In general, two soil samples will be collected from each soil boring for laboratory analysis from the intervals beneath the documented exceedances in nearby soil borings. The sample from the uppermost interval will be analyzed first. Pending the results of the initial analytical testing and providing method holding times and parameters are met, analysis of these deeper samples may be requested to define the vertical extent of impact. Analytical results will be compared to the IEPA TACO ROs. The soil sample locations and the analytical tests required at each location are summarized in Table 5-1 on the following page. Table 5-1 also includes the required number of QA/QC samples.

In addition, elevated concentrations of metals in collected soil samples may be also analyzed for certain parameters using the Synthetic Precipitation Leaching Procedure (SPLP) and/or TCLP extraction methods.

Terracon will construct and develop seven permanent monitoring wells (denoted as MW-04 through MW-10). The monitoring wells will be installed on-site coverage pursuant to IEPA SRP regulations. Terracon notes that three of the wells (MW-08, MW-09, and MW-10) will be installed east of the adjoining condominium complex in the public right-of-way along (North Spaulding Avenue).[7] Terracon anticipates that the wells will be 20 feet in depth with 10 feet of well screen. Terracon will survey the boring and monitoring well locations from an arbitrary benchmark and complete one round of groundwater elevations to calculate a hydraulic gradient and provide a groundwater flow direction diagram for the site. To assess the potential presence of indicator contaminants in groundwater, groundwater samples will be collected from the six permanent monitoring wells (MW-04 through MW-10). The groundwater sample locations and the analytical tests required at each location are summarized in Table 5-2. Table 5-2 also includes the required number of QA/QC samples. Proposed monitoring well locations are depicted on the attached Figures 2 and 3.

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[6] *Joint enrollment in the SRP is contingent on the City of Chicago's acquisition of the south and southeast parcels*
[7] *The City of Chicago will provide legal access via the typical right-of-way permit process. USEPA Brownfield grant funding will not be used for expenditures required to perform required sampling and testing in the right-of-way. Such costs will be clearly separated in all invoicing and paid by the City of Chicago with separate funding.*

Table 5-1 Proposed Soil Sampling Summary

Design Location	Field VOC[A] by PID	Lab VOC	Lab SVOCs	Lab TAL[B] Inorganics	Lab PCBs	Lab Pesticides	Lab RCRA[B] Metals	Lab PNAs	Lab TCLP RCRA Metals	Lab Reactive Cyanide/Sulfide	Lab f_{oc}	Lab Waste[C] Parameters
Critical Measurement	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TB-1 (0-30 feet)	15	2	0	0	0	0	0	0	0	0	0	0
TB-2 (0-16 feet)	8	2	0	0	0	0	0	0	0	0	0	0
TB-3 (0-24 feet)	12	2	0	0	0	0	0	0	0	0	0	0
TB-4 (0-30 feet)	15	2	0	0	0	0	0	0	0	0	0	0
TB-5 (0-20 feet)	10	0	2	0	0	0	0	0	0	0	0	0
Subtotal:	60	8	2	0	0	0	0	0	0	0	0	0
												0
Quality Control												
Field Duplicate		1	1	0	0	0	0	0	0	0	0	0
MS/MSD Sample		1	1	0	0	0	0	0	0	0	0	0
5035 Blank[D]		1	0	0	0	0	0	0	0	0	0	0
Trip Blank		1	0	0	0	0	0	0	0	0	0	0
QC Totals:		4	2	0	0	0	0	0	0	0	0	0
Totals:	60	12	4	0	0	0	0	0	0	0	0	0

Notes:
Soil samples are estimated as the minimum number necessary for assessment, additional samples may be taken.
Rinsate Blank QA/QC samples are not anticipated since sampling equipment will consist of new, disposable materials
[A] = Photoionization detector for making non-critical field screening measurements using TSOP E552
[B] = Analysis to include pH
[C] = Waste characterization parameters to include flashpoint, paint filter, total phenol, reactive cyanide/sulfide, pH, PCBs, TCLP organics, TCLP metals, volatiles, base/neutrals, and PNAs
[D] = VOC Container blank sample containing preservatives
PCBs = Polychlorinated biphenyls
Reactivity = Reactive Cyanide/Sulfide
SVOCs = Semi-volatile organic compounds
TAL = Target analyte list
TCLP = Toxicity Characteristic Leaching Procedure for individual metal
WC-1 = Composite waste characterization sample

Table 5-2 Proposed Groundwater Sampling Summary

Design Location	Lab VOC	Lab SVOCs	Lab TAL Inorganics	Lab PCBs	Lab Pesticides
Critical Measurement	Yes	Yes	Yes	Yes	Yes
MW-04	1	0	0	0	0
MW-05	1	0	0	0	0
MW-06	1	0	0	0	0
MW-07	1	0	0	0	0
MW-08	1	0	0	0	0
MW-09	1	0	0	0	0
MW-10	1	0	0	0	0
Subtotal:	7	0	0	0	0
Quality Control					
Field Duplicate	1	0	0	0	0
MS/MSD Sample	1	0	0	0	0
VOC Blank[A]	1	0	0	0	0
Trip Blank	1	0	0	0	0
QC Total:	4	0	0	0	0
Totals:	11	0	0	0	0

Notes:
Rinsate Blank QA/QC samples are not anticipated since sampling equipment will consists of new, disposable materials
[A] = VOC container blank sample containing preservatives

6.0 CHEMICAL ANALYSES NEEDED

Table identifies the analytical methods to be utilized for the proposed soil and groundwater sampling analyses and also includes the sample containers, preservatives, and maximum holding times that will apply. As described in Section 5.0, additional soil samples may be collected, if and as needed, to vertically delineate contaminant concentrations. The decision to analyze additional samples will be made pending the laboratory results for the initial samples. Analytical results will be compared to the IEPA TACO Residential ROs.

Table 6-1 Analytical Methods

Chemical Group	Method	Media	Sample Containers	Preservatives	Maximum Holding Times
VOCs	5035/8260	Soil	40ml VOA vials	Na_2SO_4/Methanol, 4° C	14 days
SVOCs	8270C	Soil	4 oz. glass jar	4° C	14 days
TAL Inorganics	6020/7471A	Soil	4 oz. glass jar	4° C	28 days
PCBs	8082	Soil	4 oz. glass jar	4° C	14 days
Pesticides	8081A	Soil	4 oz. glass jar	4° C	14 days
RCRA Metals	6020/7471A	Soil	4 oz. glass jar	4° C	28 days
PNAs	8270C	Soil	4 oz. glass jar	4° C	14 days
TCLP RCRA Metals	1311/6020/7470A	Soil	4 oz. glass jar	4° C	28-180 days
Reactive Cyanide/ Sulfide	7.3.3.2/7.3.4.2	Soil	4 oz. glass jar	4° C	14 days
foc	3550	Soil	4 oz. glass jar	4° C	28 days
pH	9045C/150.1	Soil	4 oz. glass jar	4° C	ASAP
SPLP RCRA Metals	1312/6020/7470A	Soil	4 oz. glass jar	4° C	28-180 days
Flashpoint	1010A	Soil	4 oz. glass jar	4° C	30 days
Paint filter	9095A	Soil	4 oz. glass jar	4° C	None
TCLP Organics	1311/8260/8270C	Soil	4 oz. glass jar	4° C	14 days
Base/Neutrals	8270C	Soil	4 oz. glass jar	4° C	14 days
Total Phenols	9065	Soil	4 oz. glass jar	4° C	28 days
VOCs	8260	Groundwater	3-40ml glass vials	HCL, 4° C	14 days
SVOCs	8270C	Groundwater	1-1L amber glass	4° C	7 days
Pesticides	8081A	Groundwater	1-1L amber glass	4° C	7 days
PCBs	8082	Groundwater	1-1L amber glass	4° C	7 days
TAL Inorganics	6020/7470A	Groundwater	500 mL plastic	HNO3, 4° C	28 days

7.0 HEALTH AND SAFETY PLAN

The site-specific health and safety plan is attached. Fieldwork can be initiated using Level D personal protective equipment (PPE). The Field Supervisor is responsible for ensuring that all field personnel read the plan and sign the acknowledgement of instruction.

8.0 UNANTICIPATED DEVIATIONS FROM THE DATA QUALITY OBJECTIVES/QUALITY ASSURANCE PROJECT PLAN (DQO/QAPP)

At the request of the City of Chicago, soil gas sampling will conducted on-site. USEPA Brownfield grant funding will not be used for expenditures required to perform required sampling and testing. Such costs will be clearly separated in all invoicing and paid by the City of Chicago with separate funding. However, this work is contemplated to be completed during activities under this SAP and have been approved under the QAPP. Soil vapor sampling is included to summarize proposed field activities. The sampling protocol will be:

- Use of an active soil gas sampling system, such as the Geoprobe PRT (or similar equipment). This protocol consists of withdrawing soil vapor from the subsurface by driving a heavy-gauge steel probe with inert tubing running down the center of the drive rod;
- Use 1/8" diameter rigid tubing, either Teflon or Nylaflow;
- Purge three volumes before obtaining each soil gas sample;
- Limit the flow rate to 200 milliliters per minute (ml/min);
- Use a Helium tracer to detect leaks[8];
- Collect samples in 1 liter summa canisters that are clean certified by the lab; and,
- Analyze the samples using the upgraded TO-15 at a NELAC certified lab.

Analytical results will be compared to the IEPA Soil Vapor Standards. The soil sample locations and the analytical tests required at each location are summarized in Table 8-1 below. Table 8-1 also includes the required number of QA/QC samples.

Table 8-1 Proposed Soil Gas Sampling Summary

Design Location	Lab VOC[9]	Lab SVOCs	Lab TAL Inorganics	Lab PCBs	Lab Pesticides
Critical Measurement	Yes	Yes	Yes	Yes	Yes
SV-01	1	0	0	0	0
SV-02	1	0	0	0	0

[8] *Subsection 742.227(b)(4) of IEPA's proposed vapor intrusion rules specify the use of isopropyl alcohol or other leak compound approved by the IEPA when collecting soil gas samples.*
[9] *TO-15*

Design Location	Lab VOC[9]	Lab SVOCs	Lab TAL Inorganics	Lab PCBs	Lab Pesticides
SV-03	1	0	0	0	0
SV-04	1	0	0	0	0
SV-05	1	0	0	0	0
SV-06	1	0	0	0	0
Subtotal:	6	0	0	0	0
Quality Control					
Field Duplicate	1	0	0	0	0
MS/MSD Sample	1	0	0	0	0
VOC Blank[A]	1	0	0	0	0
Trip Blank	1	0	0	0	0
QC Total:	4	0	0	0	0
Totals:	11	0	0	0	0

Notes:
Rinsate Blank QA/QC samples are not anticipated since sampling equipment will consists of new, disposable materials

Additional deviations from the DQO/QAPP are not anticipated for this site.

9.0 SUBSURFACE INVESTIGATION FIELD OPERATIONS

9.1 Terracon Standard Operating Procedures for Brownfields

As described in the QAPP dated September 16, 2011, the following Terracon Standard Operating Procedures for Brownfields (SOPs) will be used during the assessment on this property. The SOPs are included within Appendix C of the QAPP.

Table 9.1 Terracon Standard Operating Procedures for Brownfields

REFERENCE NO.		TITLE OF PROCEDURE
E.20		Standard Safe Operating Procedures for Hazardous Waste Operations
E.30		Chain-of-Custody Documentation
E.50		Sampling – Environmental Representativeness
	E.1XX	Soil Sampling
	E.100	Surface & Near Surface Soil Sampling – Grab
	E.150/155	Soil Sampling – Volatiles By TerraCore™
E.300		Sampling & Drilling Platforms
	E.4XX	Sample Handling
	E.400	Subsurface Sampling – Geoprobe© Platform
	E.468	Sample Handling – Soil (Level D)
	E.470	Sample Handling – Groundwater (Non-Hazardous)

REFERENCE NO.		TITLE OF PROCEDURE
E.5XX		Field Screening
E.530		pH Field Screening – Water
E.540		Conductivity Field Screening – Water
E.552		Field Headspace Screening – Soil / Photoionization Detector
E.554		Field Screening – Air / Photoionization Detector
E.570		Temperature Field Screening
E.580		Turbidity Field Screening
	E.800	Well Construction – Permanent
E.905		Well Security – Type B (Locking Expansion)
E.920		Well Security – Type C (Flush Mount)
	E.1300	Well Development – Volumetric
E.18XX		Physical Field Measurements
E.1800		Field Measurement – Surface Layout
E.1805		Field Measurement – Elevations
E.1820		Field Measurement – Groundwater
E.1830		Field Measurement – Free-Phase Product
E.1840		Field Measurement – Hydraulic Conductivity Testing (Slug)
	E.1900	Groundwater Sampling – Bailer
	E.2000	Groundwater Sampling – Low Flow Pumping
E.22XX		Site Housekeeping
E.2210		General
E.2220		Disposal of Spent Supplies
E.2230		Handling and Storage of Drill Cuttings (Non-Hazardous)
E.2235		Handling and Storage of Drill Cuttings (Hazardous)
	E.24XX	Cleaning & Decontamination
	E.2405	Cleaning – General
	E.2410	Cleaning – Manual Washing

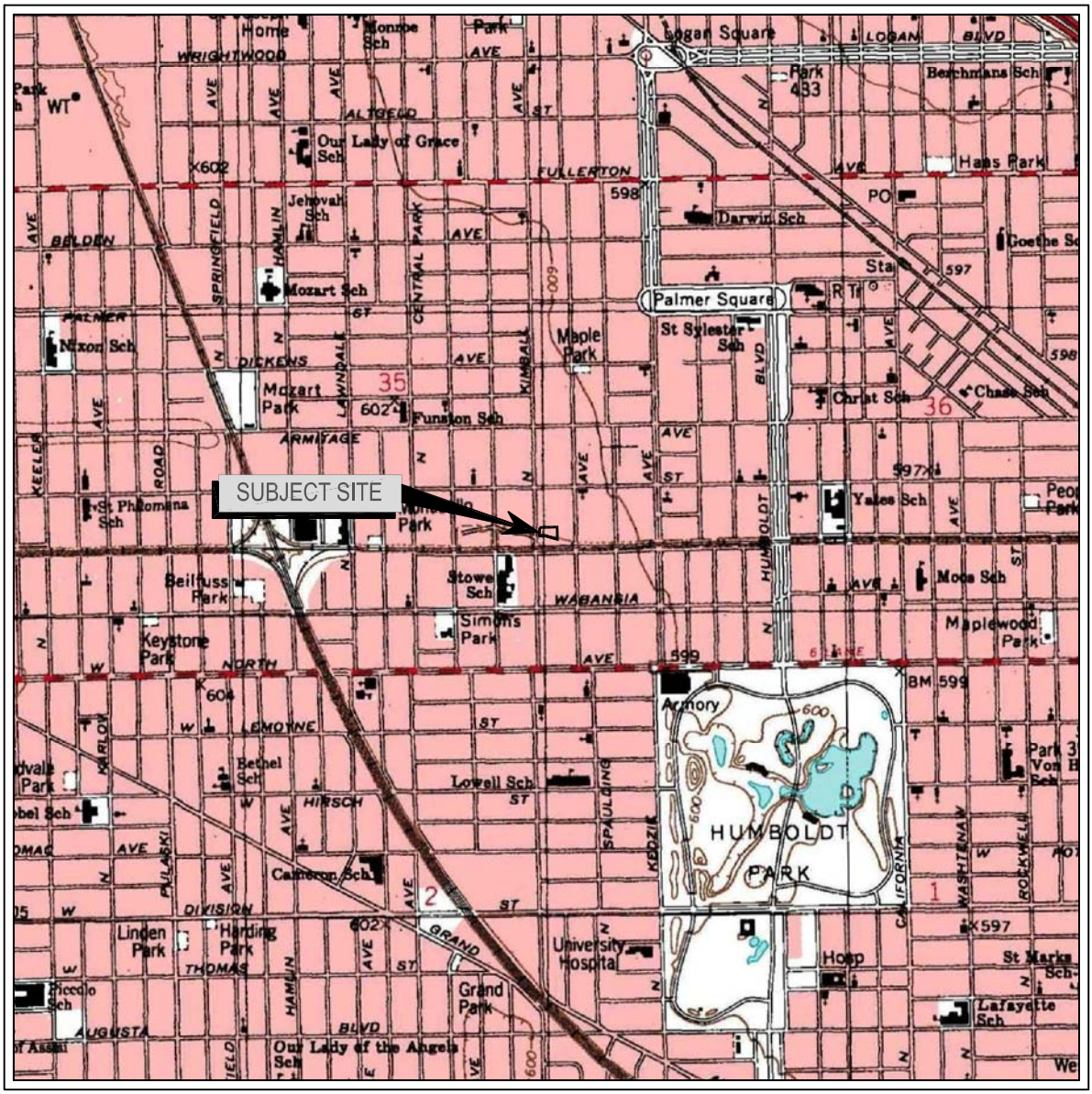
9.2 Non-Standard Procedures

As described in the QAPP, specific work scopes may require slight variation from SOPs following relevant state and federal guidance, technical standards, or manufacturer specifications not outlined under a specific SOP. Under such a scenario, relevant guidance and technical documents are to be briefly discussed and referenced in the Property-Specific Sampling and Analysis Plans. Terracon does not anticipate deviations from the SOPs for the described assessment.

APPENDIX A

FIGURES

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

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MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000

FEET

CONTOUR INTERVAL 5 FEET

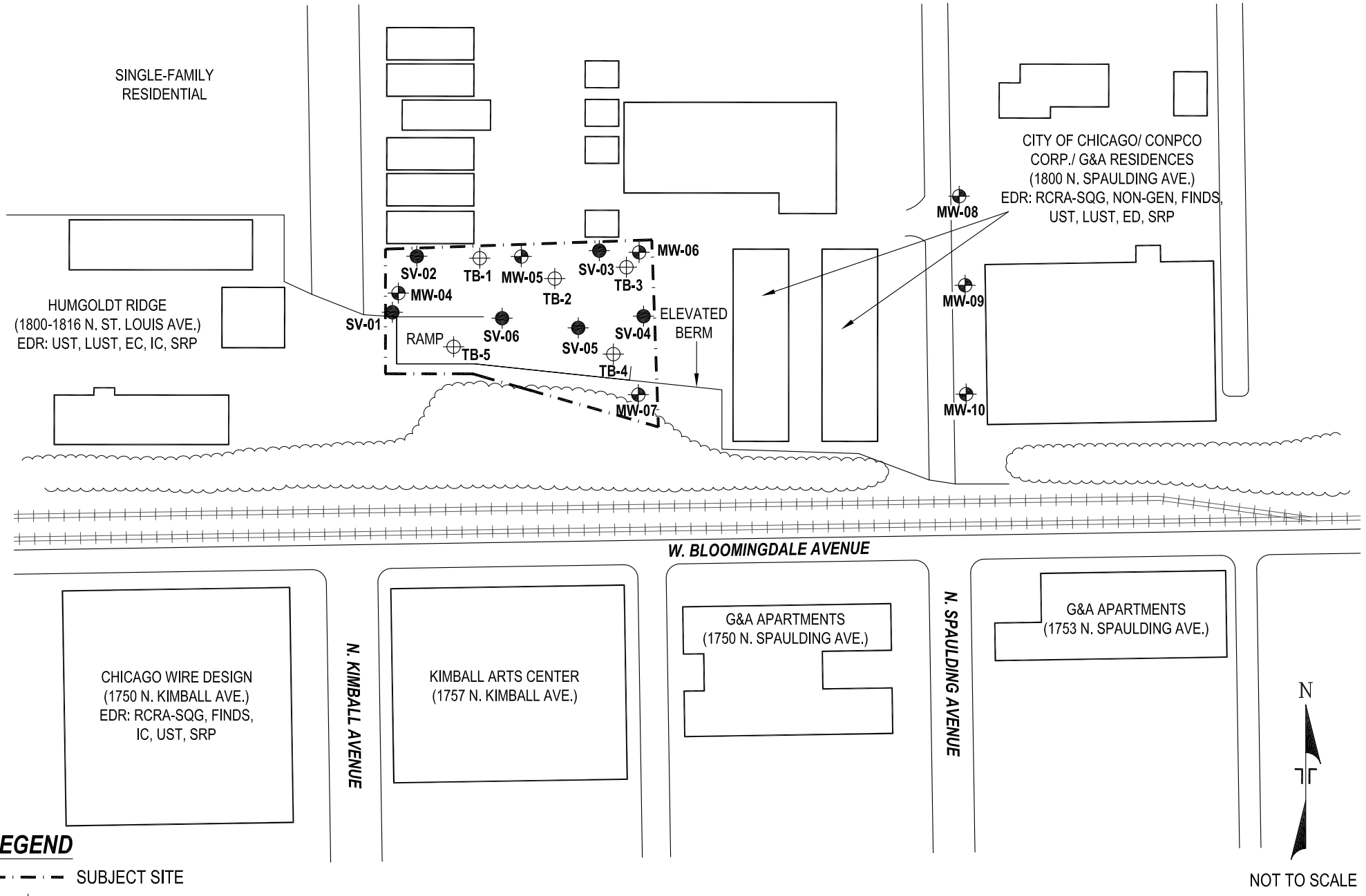
NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

QUADRANGLE
CHICAGO LOOP, IL
1997
7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mngr: CCD	Project No. A2127017A	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC VICINITY MAP
Drawn By: DWD	Scale: AS SHOWN	650 West Lake Street, Suite 420 Chicago, Illinois 60661	LIMITED SITE INVESTIGATION
Checked By: CCD/MRF	File No. LSI2127017A-1	(312) 575-0014 (312) 575-0111	1809 NORTH KIMBALL AVENUE
Approved By: CCD	Date: AUGUST 2012		CHICAGO, COOK COUNTY, ILLINOIS

EXHIBIT 1



LEGEND

- SUBJECT SITE
- APPROXIMATE MONITORING WELL LOCATION
- APPROXIMATE BORING LOCATION
- APPROXIMATE SOIL VAPOR SAMPLE LOCATION

THIS DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr:	CCD
Drawn By:	DWD
Checked By:	CCD/MRF
Approved By:	CCD

Project No.	A2107017A
Scale:	AS SHOWN
File No.	LSIA2107017A-2
Date:	AUGUST 2012

Terracon
Consulting Engineers and Scientists
650 West Lake Street, Suite 420 Chicago, Illinois 60661
(312) 575-0014 (312) 575-0111

SITE DIAGRAM

LIMITED SITE INVESTIGATION
1809 NORTH KIMBALL AVENUE
CHICAGO, COOK COUNTY, ILLINOIS

EXHIBIT 2

APPENDIX B

SITE SAFETY AND HEALTH PLAN

INTRUSIVE SITE ASSESSMENT
PETROLEUM, HYDROCARBON AND CHLORINATED SOLVENT CONTAMINATION ANTICIPATED

USEPA BROWNFIELDS HAZARDOUS SUBSTANCES AND PETROLEUM ASSESSMENT GRANTS (OCTOBER 2010)
CITY OF CHICAGO DEPARTMENT OF ENVIRONMENT
BROWNFIELDS ASSESSMENT PROJECT

Terracon Project No.: A2107017 – Task 7A

TERRACON

Chicago, Illinois

August 10, 2012

SITE SAFETY AND HEALTH PLAN

INTRUSIVE SITE ASSESSMENT
PETROLEUM, HYDROCARBON AND CHLORINATED SOLVENT CONTAMINATION ANTICIPATED

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Terracon Project No.: A2107017 – Task 7A

1.0 INTRODUCTION

This Site Safety and Health Plan (Plan) will govern the activities of all Terracon personnel during sample collection and analysis when utilizing drill rigs and/or hydraulic probe units to evaluate low-level chlorinated and petroleum hydrocarbon contamination in soils and/or groundwater. The purpose of this plan is to prevent adverse health effects from potential contaminants and safety hazards which may be present at this site.

Subcontractors engaged in project activity at this site will comply applicable provisions of the Occupational Safety and Health Act of 1970, the safety and health requirements set forth in Occupational Safety and Health Administration regulation 29 CFR 1910.120, where applicable, and any applicable state, city or local safety codes. Each subcontractor will be responsible for supplying a competent person to oversee the work they perform at this project site. The competent person for each subcontractor will bear primary responsibility for utilizing equipment and work practices necessary to protect the safety of the subcontractor's employees engaged in activities at this project site.

The subcontractor will maintain an orderly and safe work area around drilling/probe/excavation equipment to minimize the potential for accidents. In addition, the subcontractor will provide whatever safety barricades or warning devices are deemed necessary by Terracon to prevent accidents or injury to field personnel and the general public.

Subcontractors engaged on this project site may utilize this site Safety and Health Plan for their employees, or each subcontractor may develop and utilize their own site Safety and Health Plan provided the provisions of the subcontractor's site Safety and Health Plan are at least as stringent as the requirements contained in this Plan. Decisions regarding equivalence of safety and health requirements will be made by Terracon Project Manager and Corporate Safety and Health Manager. Adoption of this Site Safety and Health Plan by subcontract employers shall not relieve any site subcontractor for the responsibility for the health and safety of its employees.

2.0 SAFETY AND HEALTH ADMINISTRATION

The Project Manager is ultimately responsible for seeing that work on this project is performed in accordance with the safety and health provisions contained in this Plan. The designated Site Safety and Health Officer (SSO) will monitor compliance with this Plan during field activities. All field team members engaged in project activities will be required to sign the "Acknowledgment of Instruction" form included with this Plan. The SSO will maintain a copy of this Plan on site for the duration of project activities.

Terracon and subcontractor task leaders will be responsible for:

- Providing subordinate personnel a copy of this Plan, and briefing them on its content.
- Enforcing the applicable provisions of this Plan.
- Inspecting and maintaining equipment in compliance with applicable federal, state or local safety regulations.
- Enforcement of corrective actions.
- Investigation of accidents or injuries.

The following individuals will be responsible for implementation and enforcement of the Plan:

TITLE	NAME	PHONE
Project Manager:	Matthew K. Otto, CHMM	312-575-0014
Terracon Safety and Health Manager:	Gary K. Bradley, CSP, CHMM	913-599-6886
Site Safety and Health Officer:	Richard O'Brien	312-575-0014
Terracon Task Leader(s):	Matthew K. Otto, CHMM	312-575-0014
	Richard O'Brien	312-575-0014

If hazardous conditions develop during the course of project activity, the SSO will consult the Corporate Safety and Health Manager and coordinate actions required to safeguard site personnel and members of the general public. Additional safety measures will be verbally communicated to all project personnel, recorded in writing and appended to this Plan.

3.0 EMPLOYEE TRAINING REQUIREMENTS

All Terracon personnel participating in this project must have completed 40-hour Hazardous Waste Site Training and at least three days supervised field experience per the requirements of OSHA 29 CFR 1910.120. In addition, a current 8-hour annual refresher training certificate will be required for all personnel. Training certificates will be maintained by the Corporate Safety and Health Manager in the Terracon Corporate Office.

Prior to the start of project activities, the Project Manager will discuss the contents of this Plan with all Terracon personnel on-site. The proposed scope of work, potential site hazards, air monitoring requirements and action levels for upgrade/downgrade of personal protective equipment will be communicated to all field personnel.

4.0 MEDICAL SURVEILLANCE REQUIREMENTS

All Terracon personnel participating in this project must be enrolled in a health monitoring program in accordance with the provisions of OSHA 29 CFR 1910.120 and 29 CFR 1910.134. Each project participant will be certified by a Doctor of Medicine as fit for respirator and semi-permeable/impermeable protective equipment use. All personnel must have received an environmental physical examination within one year prior to the start of the project. Content of physical examinations will be determined by the consulting physician.

5.0 SITE HISTORY/SCOPE OF SERVICES

Terracon personnel will perform an intrusive assessment to determine soil and groundwater impact of hydrocarbons, metals and/or chlorinated solvent compounds at the site indicated below:

Client: Chicago Department of Environment

Address: 1809 North Kimball Avenue, Chicago, Illinois

Currently available information for the sites indicate that soils/groundwater at the above project site may be impacted by hydrocarbons, metals and/or chlorinated solvent compounds. Personnel will abide by the personal protective equipment and air monitoring protocols contained in this Plan during intrusive phases of site activity.

6.0 SITE CONTROL

Depending upon site topography, the area within a 30 foot radius of the drill rig or hydraulic probe unit will be considered an exclusion zone. Anyone entering this area must be wearing the appropriate personal protective equipment as described in this plan and must have the authorization of the SSO and/or client representative. If unauthorized personnel attempt to enter a project exclusion zone, the SSO will notify the individuals to leave the area. If unauthorized personnel refuse to leave the area, the SSO will cease project activities and notify the client representative.

No eating smoking or tobacco chewing will be permitted in project exclusion zone.

7.0 PERSONAL PROTECTIVE EQUIPMENT

Hydraulic probing and soil boring activity at this project site may begin in Level D personal protective equipment. Impermeable gloves of nitrile or Silver Shield will be worn during soil and groundwater collection and field screening activities.

Groundwater monitoring wells to be sampled at these project sites may contain hydrocarbon compounds, metals, and/or petroleum. Site personnel are advised that volatile organic vapors can collect in groundwater monitoring wells and be displaced into the breathing zone by bailers and sample pumps.

Personnel are advised to approach groundwater monitoring wells from the upwind side to remove the well cap. Extend to remove the well cap keeping the breathing zone as far as possible to the upwind side. Allow the well to vent approximately five minutes prior to bailing. If organic vapors are detected, monitor the well with a photoionization detector. Upgrade to respiratory protection if photoionization detector readings exceed the action level specified below.

8.0 AIR MONITORING REQUIREMENTS AND ACTION LEVELS

The following air monitoring instruments will be used to periodically monitor the breathing zone of site personnel:

- **Photoionization Detector**

The instrument will be calibrated in accordance with the manufacturer's instructions immediately prior to use. NOTE: The ionization potential of some chlorinated solvents is either beyond or at the extreme end of the standard 10.0 or 10.6 eV ultraviolet PID lamp. It is recommended that the ionization potential of the principal known contaminants of concern be evaluated prior to site mobilization. Where required, a higher energy **(11.7 or 11.8 eV)** lamp should be utilized on chlorinated hydrocarbon project sites. The higher energy lamps may typically be rented for the duration of the project.

8.1 Air Monitoring Action Levels

The action levels indicated below will be used to determine personal protective equipment requirements and emergency evacuation from the site:

COMPOUND	MODIFIED LEVEL D	LEVEL C	SITE EVACUATION
Organic Vapors (OVM)	< 10 ppm	10-50 ppm	> 50 ppm

If organic vapors in the breathing zone of site personnel exceed **10 ppm**, personnel will upgrade to full face air purifying respirators equipped with organic vapor cartridges. Personnel will remain in Level C respiratory protection until sustained breathing zone OVM readings remain below 10 ppm. If organic vapor readings exceed 50 ppm, site personnel will evacuate the area and notify

the Safety and Health Manager to discuss site conditions, additional monitoring requirements, enhanced respiratory protection and modification of this Plan.

9.0 HAZARD ASSESSMENT

9.1 Chemical Hazards

As indicated groundwater and/or soils at this project site may be impacted by hydrocarbon compounds, metals, and/or petroleum. Benzene is the most significant health hazard contained in petroleum blends and typically comprises less than 1% of regular grade gasoline. Brief toxicological profiles of various chlorinated solvent compounds and petroleum compounds and their most health-significant volatile fractions are provided below. Personnel engaged in monitoring well sampling are advised that organic vapors from contaminated groundwater can collect in wells and be displaced by bailers. Personnel are advised to approach monitoring wells from the upwind side, remove the cap and allow the well to vent momentarily prior to sampling. Keep breathing zone to the upwind side of wells during bailing activities.

TRICHLOROETHYLENE
Permissible Exposure Limit
100 ppm OSHA PEL
200 ppm OSHA STEL
50 ppm ACGIH TLV

Trichloroethylene is a clear, colorless volatile liquid with a sweet, chloroform-like odor. Trichloroethylene is a narcotic, an irritant to the skin and mucous membranes, a liver and kidney toxin and is believed by NIOSH to be a potential human carcinogen. Workers exposed to concentrations averaging 10 ppm complained of headache, dizziness and sleepiness. Prolonged inhalation of vapors may result in central nervous system depression, nausea, narcosis, headache and nausea. Skin contact may cause drying, redness and irritation. Chronic exposure to trichloroethylene vapors may cause kidney and liver damage.

PERCHLOROETHYLENE
Permissible Exposure Limit
100 ppm OSHA PEL
200 ppm OSHA STEL
25 ppm ACGIH TLV
Perchloroethylene (tetrachloroethylene) is a clear, colorless, volatile liquid with an ether-like odor. NIOSH considers perchloroethylene to be a potential human carcinogen. Tetrachloroethylene causes central nervous system depression and liver damage. Defatting action of the skin can lead to dermatitis. Unconsciousness, dizziness, headache, vertigo and light narcosis have occurred in many instances after occupational exposure.

1,2-DICHLOROETHYLENE
Permissible Exposure Limit
200 ppm OSHA PEL

1,2-Dichloroethylene is a colorless liquid with a sweet, pleasant odor. Skin contact may irritate skin and mucous membranes. It is a highly narcotic compound. Symptoms of acute exposure include central nervous system depression, nausea, vomiting, weakness and tremor.

1,1,1-TRICHLOROETHANE
Permissible Exposure Limit
350 ppm OSHA PEL

1,1,1-trichloroethane is a colorless liquid with a chloroform-like odor. Skin contact may irritate the skin and mucous membranes. It is a central nervous system depressant. Excessive absorption through the lungs or gastrointestinal tract produces CNS depression. Mild liver and kidney dysfunction has also been reported.

BENZENE

Permissible Exposure Limit
1 ppm OSHA PEL
5 ppm OSHA 10 min Ceiling
0.5 ppm OSHA Action Level

Benzene is a central nervous system depressant and an eye and skin irritant. Poisoning may cause hemorrhages and immunosuppression. A relationship has been discovered between benzene exposure and leukemia. Benzene is regulated as an occupational carcinogen. Acute exposure may cause dizziness, excitation, weakness, headache, giddiness, breathlessness and chest constriction.

TOLUENE

Permissible Exposure Limit
50 ppm ACGIH TLV
(Skin Absorbable)

Toluene is an eye, skin and mucous membrane irritant and a central nervous system depressant. Poisoning may affect the liver and kidneys. Prolonged exposure may affect the heart and blood. The ingestion of alcoholic beverages may enhance the toxic effects of toluene. Symptoms of exposure include respiratory tract irritation, headache, dizziness and eye irritation. Toluene may be absorbed to the bloodstream via skin contact.

ETHYL BENZENE

Permissible Exposure Limit
100 ppm OSHA PEL
Ethyl benzene is a skin, eye and mucous membrane irritant. It is moderately toxic by ingestion and slightly toxic by skin absorption. Ethyl benzene is a central nervous system depressant. Poisoning may affect the liver. Symptoms of exposure may include a sense of chest constriction and nervous disorders. Skin contact may result in first and second degree burns. The odor can be detected at 140 ppm ant irritation occurs at 200 ppm.

XYLENE

Permissible Exposure Limit
100 ppm OSHA PEL

Xylene is a mild eye and mucous membrane irritant, primary skin irritant and a central nervous system depressant. Ingestion causes severe gastrointestinal upset and creates an aspiration hazard. Chronic inhalation results in symptoms that resemble acute poisoning, but are more severe systemically.

GASOLINE

Permissible Exposure Limit
300 ppm ACGIH TLV

Gasoline is irritating to the skin, eyes and mucous membranes. Dermatitis may result from prolonged contact with the liquid. Gasoline acts as a central nervous system depressant. Exposure may cause staggering gait, slurred speech and mental confusion. Gasoline exposure may affect the liver, kidneys and spleen. Absorption of alkyl lead antiknock compounds contained in many gasolines poses an additional health concern, especially where there is prolonged skin contact.

DIESEL FUEL (No. 2-D)

Permissible Exposure Limit
400 ppm OSHA PEL (As petroleum distillates/naphtha)

Diesel fuel is a skin and mucous membrane irritant and a central nervous system depressant. Poisoning may affect the liver and kidneys. Skin contact may result in drying and cracking of the skin.

FUEL OIL (No. 6)

Permissible Exposure Limit
400 ppm OSHA PEL (as petroleum distillates/naphtha)
0.2 mg/m^3 OSHA PEL (Coal Tar Pitch Volatiles, "PNA's")

Fuel oil No. 6, or "Bunker Fuel", may be irritating to the eyes and skin. Poisoning may affect the liver, kidneys and digestive system. This substance is likely to contain polynuclear aromatic hydrocarbons (PNA's), some of which are considered carcinogenic. PNA's present a skin contact hazard. Avoid skin contact with potentially contaminated site materials.

9.2 Physical Hazards

Activities to be performed on site may involve drilling equipment and materials. Personnel should be aware that as personal protective equipment increases, dexterity and visibility may be impacted and performing some tasks may be more difficult. Tape all loose protective clothing to avoid entanglement in rotating equipment. Before drilling proceeds, underground utilities must be located and marked. Other drilling safety precautions to be observed during this assessment include the following:

- All personnel working around drill rigs will be familiarized with emergency shut-down procedures and the position of "kill" switches.
- No loose fitting clothing, jewelry or unsecured long hair is permitted near the rig.
- Keep hands and feet away from all moving parts while drilling is in progress. Shovel auger cuttings with long handled shovel. *DO NOT* use hands or feet.
- Daily inspection of all ropes, cables and moving parts is mandatory.
- A first aid kit and fire extinguisher will be immediately available at all times.
- All drill crews shall consist of at least two persons.
- No drilling is permitted during impeding electrical storms, tornadoes or when rain creates a hazardous work environment.
- A minimum horizontal and vertical clearance distance of **10 feet** must be maintained between the drill rig and overhead power lines; use spotters to help rig operator maneuver the vehicle when near overhead power lines.

Other physical hazards which may be present on this project site include:

- Back injuries due to improper lifting – Use proper lifting techniques. Lift with the legs, not the back. Keep loads close to the body and avoid twisting. Loads heavier than 50 pounds (lbs) require a second person or mechanical device for lifting. Use mechanical

devices such as drum dollies, hand trucks, and tool hoists (for lifting augers) to lift or move heavy loads whenever possible.

- Ergonomic Stress – Lift carefully with load close to body with the legs taking most of the weight. Get help with lifts greater than 40 lbs. When working with a heavy tool or object, keep legs under the load and do not overreach or twist to the side. Reposition body to be more square to the load and work. Push loads, rather than pull, whenever feasible. Do not persist with lifting when the load is too heavy. Use a mechanical lifting aid or have a coworker assist with the lift. Rotate repetitive tasks to avoid soft-tissue fatigue.

- Falls From Elevated Surfaces – Protect employees from falling off surfaces that have a side or an edge that is 6 ft or more above a lower level. Provide a safety harness and shock-absorbing lifeline or adequate fall protection where applicable. Employees must wear them when working 6 ft or higher above the platform or main work deck. Install either a guardrail system or fall arrest system that conforms to 29 CFR 1926.502 (d) and is approved by the American National Standards Institute.

- Fire and Explosion – Make ABC fire extinguishers accessible in the work area. Store flammables in Underwriter's Laboratory and Occupational Safety and Health Administration (OSHA) approved metal safety cans equipped with spark arrestors. Store flammable containers more than 50 ft from possible ignition sources. Keep exhaust equipment powered by internal combustion engines well away from flammables and combustibles. Secure hot work permits/approvals before welding or cutting. Store and use compressed gases in a safe manner. Never refuel equipment (e.g., generators) while it is in operation or hot enough to ignite fuel vapors. Conspicuously mark operations that pose fire hazards "No Smoking" or "Open Flames." Remove trash, weeds, and unnecessary combustibles from the Exclusion Zone (EZ). Transfer of potentially flammable liquids will be conducted with intrinsically safe pumping equipment. Drums will be bonded and grounded prior to transfer of potentially flammable liquids.

- Vehicles – Obey all site traffic signs and speed limits. Seat belts must be functional and in use during operation of any site vehicles (including rentals). Operator shall regularly inspect the vehicle for defective parts, such as brakes, controls, motor, chassis and drives. Always be aware and stay alert to traffic around the work area.

- Inclement Weather – The project may be shutdown by the SSO during the following inclement weather conditions: poor visibility; precipitation severe enough to impair safe movement or travel; lightning in the immediate area; steady winds in excess of 40 mph; or, other conditions as determined by the SSO or Corporate Safety and Health Manager. Work will resume when the conditions are deemed safe by the SSO.

- Noise – Wear hearing protection when speech becomes difficult to understand at a distance of 10 ft and while standing within 20 to 25 ft from heavy equipment, pneumatic power tools, steam cleaners, and other equipment in operation that can generate more than 85 decibels (A-weighted scale) (dBA).

- Slips, Trips, and Falls – Clear work area of obstructions and debris before setting up. Alter work areas as necessary to provide a safe, reasonably level area. All walking and working surfaces shall continually be inspected and maintained to be free of slip, trip, and fall hazards. Keep platforms, stairs, and immediate work areas clear. Do not allow oil, grease, or excessive mud to accumulate in these areas. Eliminate slip, trip, and fall hazards or identify them clearly with caution tape, barricades, or equivalent means. Store loose or light material and debris in designated areas or containers. Secure tools, materials, and equipment subject to displacement or falling.

- Traffic Control – If site activities interrupt the normal flow of pedestrian or vehicular traffic, barricades and warning signs which comply with the Manual on Uniform Traffic Control Devices and/or State or local ordinances will be erected around affected equipment. Safety orange work vests will be worn by personnel working within 10 feet of any active roadway. All borings or partially completed groundwater monitoring wells will be adequately covered and/or barricaded if left unattended for any period of time.

10.0SITE COMMUNICATIONS

Communication between personnel engaged in project activities will be via verbal communication or hand signals. Visual contact between members of task teams should be possible throughout the course of project activities. Contact with the SSO will be through direct verbal communication. The SSO will maintain an operable cellular telephone in the soil gas van for the duration of this project. The following hand signals will be used by personnel wherever respiratory protection and/or equipment noise limit verbal communication.

Signal	Meaning
Thumbs Up	OK, all is well
Grab throat with both hands	Can't breathe
Shake head, thumbs down	NO, negative
Point right (when facing equipment operators)	Move/steer left
Point left (when facing equipment operators)	Move/steer right
Grab partner's wrist	Leave area immediately

11.0 DECONTAMINATION

All reusable sampling equipment will be thoroughly cleaned with steam or high pressure wash of hot water and anionic detergent prior to each use. All decontamination fluids will be disposed of as provided in the work plan. Disposable protective clothing will be placed in plastic bags, containerized and left on site. Respirators and boots will be thoroughly cleaned with hot water and anionic detergent.

12.0 ACCIDENT PREVENTION

- The Site Safety Officer has administrative responsibilities for implementing the provisions of this Health and Safety Plan.
- The Site Safety Officer will hold daily safety briefings at the start of each work day.
- If site activities interrupt the normal flow of pedestrian or vehicular traffic, appropriate barricades will be erected field equipment. Traffic safety vests will be worn by personnel working within 10 feet of any active roadway.
- The Site Safety Officer will attempt to prevent unauthorized personnel from entering project exclusion zones. Authorized visitors will be briefed on site contaminants, personal protective equipment requirements of this Plan.
- The Site Safety Officer will periodically inspect the work area for infractions of Health and Safety requirements of this Plan.
- The Site Safety Officer will investigate and promptly report accidents to the Corporate Safety and Health Manager.
- Site activities will be conducted only during daylight hours unless adequate portable lighting is mobilized to the project site.
- The "buddy system" will be observed at all times during intrusive site investigations. A minimum of two people will work together and remain within eye sight or not greater than 100 ft. apart.

13.0 EMERGENCY RESPONSE PROCEDURES

Information relating to nearest Hospital/Medical Care facility can be found on the site specific Job Hazard Assessment (JHA) which will be on-site at each of the project site.

EMERGENCY TELEPHONE CONTACTS

Ambulance:	**911**
Fire Department:	**911**
Police:	**911**
Safety and Health Manager:	**(913) 599-6886**

13.1 Personal Injury

For minor injuries, such as cuts, burns, exhaustion, heat cramps, insect stings, etc., the affected employee will be removed to an uncontaminated area. The SSO or other designated employee trained in first aid procedures will administer appropriate first aid. If the injury warrants additional medical attention, the affected employee will be properly decontaminated and transported to the nearest hospital or emergency medical facility.

For more serious injuries the Site Safety Officer or designee will summon an ambulance to the project site. No attempt will be made by Terracon personnel to move the victim, without the aid and/or instructions of qualified medical personnel.

Where air monitoring indicates the absence of toxic gases or vapors, the ambulance will be directed to the affected employee. If site conditions warrant and as time permits, the wheels of the ambulance will be decontaminated with high pressure wash. The SSO or designee will accompany the ambulance to the medical facility, and provide guidance concerning additional decontamination which may be required for the injured employee, ambulance or attendants.

ACKNOWLEDGMENT OF INSTRUCTION

All Terracon personnel are required to sign the following acknowledgment of instruction form prior to conducting project activities. This acknowledgment is not a waiver. It is the primary method used in compiling environmental experience and contaminant exposure records for Terracon personnel. Upon written request, a copy of your environmental work record will be provided by the Corporate Safety and Health Manager.

PROJECT NAME: CDOE Brownfields (1809 North Kimball Avenue)

TERRACON PROJECT No.: A2107017 – Task 7A

I understand that this project involves the investigation of a project site with potential chlorinated solvent contamination. The probability of encountering sustained breathing zone concentrations of chlorinated solvent vapors in excess of permissible exposure limits during hydraulic probing operations is considered low. However, the possibility of encountering airborne concentrations of these compounds during drilling and sampling tasks cannot be ruled out. I have read this Safety and Health Plan and have received instructions for safe work practices, personal protective equipment and air monitoring requirements. I further understand that if I encounter unanticipated contamination I am to leave the site and immediately notify the Project Manager and Corporate Safety and Health Manager of conditions discovered.

Name: (Please Print)	**Signature**	**Date**:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

PERSONAL PROTECTIVE EQUIPMENT UTILIZED:

__X__ **LEVEL D** _____ **LEVEL D MOD.** ____ **LEVEL C**

AIR MONITORING RESULTS (Attach and return separate page.)

Safety briefing performed by: _____ Date:_____

bing Maps

A **1901 W Harrison St, Chicago, IL**
Cook County Hospital (312) 633-6000

B **1809 N Kimball Ave, Chicago, IL 60647**

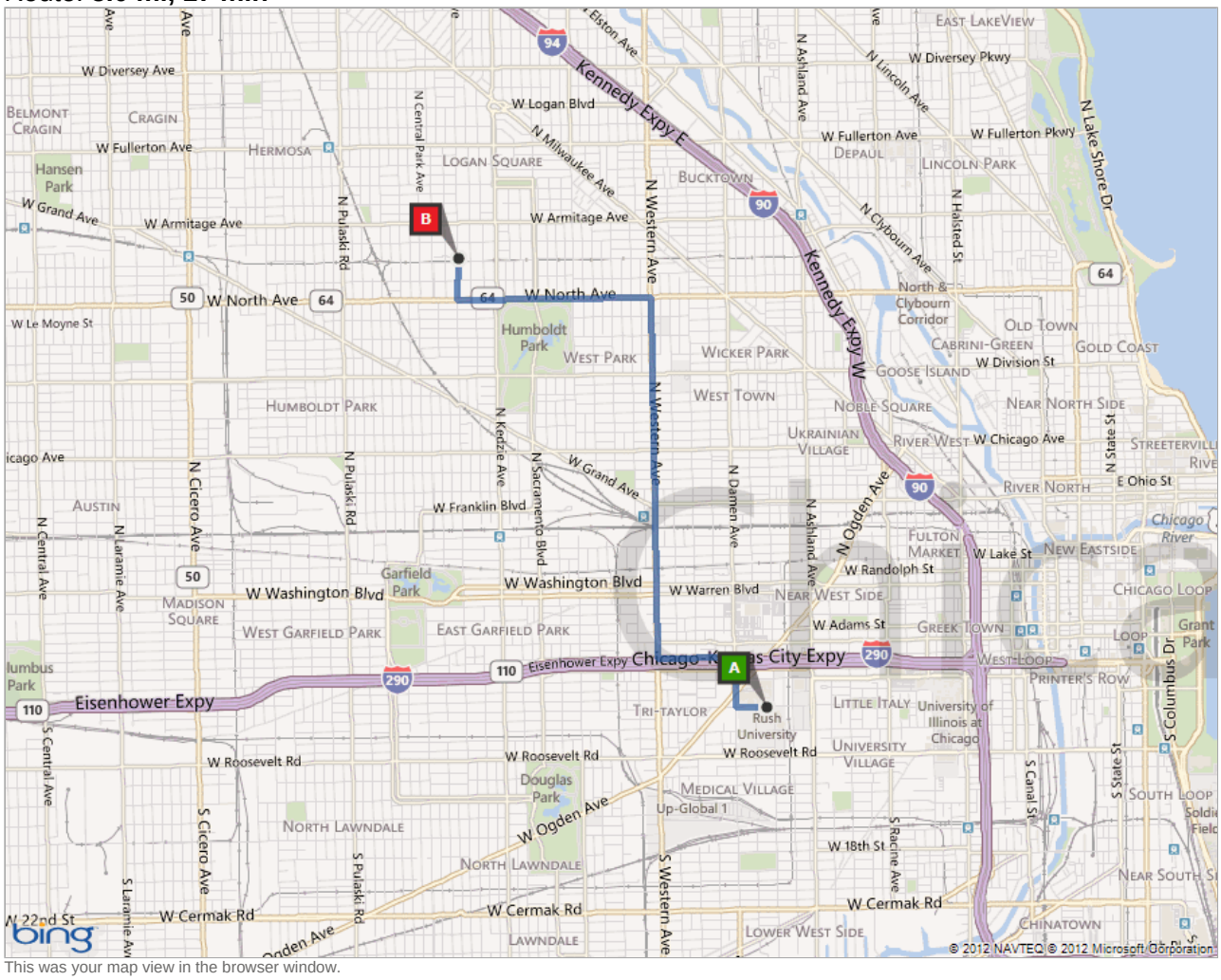
Route: **5.0 mi, 17 min**

My Notes

On the go? Use **m.bing.com** to find maps, directions, businesses, and more

A	**1901 W Harrison St, Chicago, IL**	**A–B: 5.0 mi** 17 min
	1. Depart **W Polk St** toward S Wolcott Ave	0.2 mi
	2. Turn **right** onto **S Damen Ave**	0.3 mi
	3. Turn **left** onto **W Van Buren St**	0.5 mi
	4. Turn **right** onto **S Western Ave**	0.4 mi
	5. Road name changes to **N Western Ave** *Pass CITGO in 1.1 mi*	2.0 mi
	6. Turn **left** onto **IL-64 / W North Ave** *Shell on the corner*	1.3 mi
	7. Turn **right** onto **N Kimball Ave**	0.3 mi
B	8. Arrive at **1809 N Kimball Ave, Chicago, IL 60647** *The last intersection is W Bloomingdale Ave* *If you reach W Cortland St, you've gone too far*	

Route: **5.0 mi, 17 min**



This was your map view in the browser window.

A: **1901 W Harrison St, Chicago, IL**

B: **1809 N Kimball Ave, Chicago, IL 60647**